



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

11201 Renner Boulevard
Lenexa, Kansas 66219

JAN 21 2015

Ex. 6

Meramec Caverns Enterprises, Inc.
P.O. Box 948
Stanton, Missouri 63079

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The U.S. Environmental Protection Agency received a letter on your behalf from the Ozark Underground Laboratory, dated January 9, 2015. This letter was a response to EPA's December 17, 2014, letter which summarized our meeting on December 11, outlined several actions to be initiated immediately and outlined several actions to be considered as longer term actions. The letter also asked you to submit by January 15 a summary of progress on worker notification and implementation of the short-term (immediate) actions, as well as a plan for addressing all of the actions including the long-term actions needed to address the threat of Trichloroethene (TCE) exposure in the cave and gift shop.

We appreciate receiving your response in a timely manner; however, the response does not indicate that any progress has been made on the short-term actions identified by the EPA for immediate action. During our phone call on January 15 to discuss our concerns with the delay in taking proactive steps to reduce exposure, you said that you had not understood the sense of urgency, nor did you understand that TCE levels in the cave and gift-shop areas had exceeded EPA's health-based action level. You mentioned that since the levels of TCE were lower in the winter you did not believe there was an immediate health concern.

To clarify and reiterate our concern for the health of workers in the cave and gift shop, levels of TCE detected on multiple occasions in various areas of the gift shop and cave exceeded EPA's health-based level of 8 ug/m^3 . The EPA considers this exposure to present an imminent and substantial endangerment to human health, and actions must be initiated immediately to address the exposures.

Although the levels of TCE in the cave during the summer are typically much higher than they are in the winter, even during winter sampling events, there have been detections above 8 ug/m^3 . Since we do not have exact exposure scenarios for workers during a typical day and there are fluctuations in the amount of TCE detected in cave air based on environmental conditions and possibly worker routines (such as when pathways are cleaned with spring water which contains TCE) the assumption is that workers in the cave and gift shop are likely to be exposed to TCE above 8 ug/m^3 during every season.

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You mentioned during our call that your consultant with the Ozark Underground Laboratory was already conducting studies within the cave to help determine actions to be taken before the tourism season starts. While additional studies may be helpful for defining long term actions, they do not address the immediate threat. Each of the actions described below must be implemented immediately. As you stated on the phone, winter is a slow season for tourism, so implementing these actions now should minimize any adverse impact on your business operations.

1. Evaluate the HVAC system of the gift shop building and enhance air exchanges with fresh outside air. Also evaluate and implement HVAC modifications necessary to maintain a positive pressure inside the building.
2. Evaluate and modify/adjust the glass doors and fan air curtain system to minimize the introduction of cave air into the gift shop building.
3. Add in-line carbon filters to remove TCE from water and during cave maintenance (i.e., cleaning pathways and spraying cave formations such as the theater curtain).
4. Minimize worker time spent in the cave – this can be accomplished in various ways including moving the ticket counter to the gift shop, rotating tours so that guides spend only part of their day within the cave, and other operational changes to minimize in-cave worker exposure.

I mentioned during the January 15 call that John Schumacher from the U.S. Geological Survey may be able to assist in determining what type of in-line carbon filters will work with the existing system that you are using for cave maintenance. You expressed interest in that assistance and I have confirmed with USGS that they can oblige. I have arranged for John Schumacher to meet with you at the cave on January 20, 2015.

In addition to evaluating and installing the in-line carbon filters, our expectation is that you will hire a HVAC professional within one week of receiving this letter, and that HVAC modifications will be initiated as soon as possible. You also need to evaluate the glass door system to see if adjustments can be made that will assist in keeping cave air out of the gift shop. It is possible that John Schumacher or the HVAC contractor may be able to assist in troubleshooting the glass door system and air curtain. We realize you are working with a limited staff during the off-season and may already be minimizing the time workers spend in the cave. If that is the case, please provide us with the steps you have already taken to address this issue. If you have not reduced the amount of time workers are being exposed to cave-air, you need to develop a plan and act on it as soon as possible until TCE levels in the cave air have been appropriately addressed.


In the January 9 letter from Ozark Underground Laboratory, we were provided with a copy of the notice that was given to your employees regarding TCE detections within the cave. While the notice provides some level of awareness of the presence of TCE, it does not adequately convey concerns about health threats from the levels of TCE detected to date. The letter also mentions that employees have been given the TCE fact sheet we provided to you. We need to confirm that the Sampling Notice we provided in our December 17 letter has been posted on the employee bulletin board.

Please provide us with a detailed response in the form of a progress report by January 30, 2015. The progress report should include a detailed explanation of the actions taken, underway, and planned. In addition, we would like to establish weekly teleconferences to continue our dialogue and ensure continued progress on the actions necessary to address health threats. I will contact you to arrange a mutually agreeable schedule for these calls.

To conclude, I want to restate our mutual interest in protecting your workers and cave visitors. We appreciate the cooperation you have demonstrated to date, and we would like to proceed in a collaborative manner. We believe that the actions we have identified for immediate implementation are reasonable and manageable actions for you to take as the owner of this property. If EPA believes by January 30, 2015, that substantial progress on the immediate actions has not been made, we will be obligated to consider enforcement options in order to ensure protection of the health of workers from exposure to TCE in the cave and gift shop area.

If you have any questions regarding this letter, please contact me at (913) 551-7589 or by email at howell.tonya@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "Tonya Howell". The signature is written in a cursive, flowing style.

Tonya Howell
Remedial Project Manager
Missouri/Kansas Remedial Branch
Superfund Division

cc: Candace McGhee, MDNR
Thomas Aley, Ozark Underground Laboratory, Inc.
Erin Harman, ATSDR
Michelle Hartman, MDHSS